

09/29/98



JC533 U.S. PTO

Practitioner's Docket No. 10240/001/34771

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Box Patent Application
Assistant Commissioner for Patents
Washington, D.C. 20231



JC558 U.S. PTO

09/162562

09/29/98

NEW APPLICATION TRANSMITTAL

Transmitted herewith for filing is the patent application of

Inventor(s): Robert D. Boehlow

WARNING: 37 C.F.R. § 1.41(a)(1) points out:

"(a) A patent is applied for in the name or names of the actual inventor or inventors.

"(1) The inventorship of a nonprovisional application is that inventorship set forth in the oath or declaration as prescribed by § 1.63, except as provided for in § 1.53(d)(4) and § 1.63(d). If an oath or declaration as prescribed by § 1.63 is not filed during the pendency of a nonprovisional application, the inventorship is that inventorship set forth in the application papers filed pursuant to § 1.53(b), unless a petition under this paragraph accompanied by the fee set forth in § 1.17(i) is filed supplying or changing the name or names of the inventor or inventors."

For (title):

KEYLESS DEADBOLT LOCK ENGAGING DEVICE

CERTIFICATION UNDER 37 C.F.R. 1.10*

(Express Mail label number is mandatory.)

(Express Mail certification is optional.)

I hereby certify that this New Application Transmittal and the documents referred to as attached therein are being deposited with the United States Postal Service on this date September 29, 1998 in an envelope as "Express Mail Post Office to Addressee," mailing Label Number EE/28856401US, addressed to the: Assistant Commissioner for Patents, Washington, D.C. 20231.

Sherry Roussin

(type or print name of person mailing paper)

Sherry Roussin

Signature of person mailing paper

WARNING: Certificate of mailing (first class) or facsimile transmission procedures of 37 C.F.R. 1.8 cannot be used to obtain a date of mailing or transmission for this correspondence.

***WARNING:** Each paper or fee filed by "Express Mail" **must** have the number of the "Express Mail" mailing label placed thereon prior to mailing. 37 C.F.R. 1.10(b).

"Since the filing of correspondence under § 1.10 without the Express Mail mailing label thereon is an oversight that can be avoided by the exercise of reasonable care, requests for waiver of this requirement will **not** be granted on petition." Notice of Oct. 24, 1996, 60 Fed. Reg. 56,439, at 56,442.

(Application Transmittal [4-1]—page 1 of 11)

1. Type of Application

This new application is for a(n)

(check one applicable item below)

- ☐ Original (nonprovisional)
- ☐ Design
- ☐ Plant

WARNING: Do not use this transmittal for a completion in the U.S. of an International Application under 35 U.S.C. 371(c)(4), unless the International Application is being filed as a divisional, continuation or continuation-in-part application.

WARNING: Do not use this transmittal for the filing of a provisional application.

NOTE: If one of the following 3 items apply, then complete and attach ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF A PRIOR U.S. APPLICATION CLAIMED and a NOTIFICATION IN PARENT APPLICATION OF THE FILING OF THIS CONTINUATION APPLICATION.

- ☐ Divisional.
- ☒ Continuation.
- ☐ Continuation-in-part (C-I-P).

2. Benefit of Prior U.S. Application(s) (35 U.S.C. 119(e), 120, or 121)

NOTE: A nonprovisional application may claim an invention disclosed in one or more prior filed copending nonprovisional applications or copending international applications designating the United States of America. In order for a nonprovisional application to claim the benefit of a prior filed copending nonprovisional application or copending international application designating the United States of America, each prior application must name as an inventor at least one inventor named in the later filed nonprovisional application and disclose the named inventor's invention claimed in at least one claim of the later filed nonprovisional application in the manner provided by the first paragraph of 35 U.S.C. 112. Each prior application must also be:

(i) An international application entitled to a filing date in accordance with PCT Article 11 and designating the United States of America; or

(ii) Complete as set forth in § 1.51(b); or

(iii) Entitled to a filing date as set forth in § 1.53(b) or § 1.53(d) and include the basic filing fee set forth in § 1.16; or

(iv) Entitled to a filing date as set forth in § 1.53(b) and have paid therein the processing and retention fee set forth in § 1.21(f) within the time period set forth in § 1.53(f).

37 C.F.R. § 1.78(a)(1).

NOTE: If the new application being transmitted is a divisional, continuation or a continuation-in-part of a parent case, or where the parent case is an International Application which designated the U.S., or benefit of a prior provisional application is claimed, then check the following item and complete and attach ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

WARNING: If an application claims the benefit of the filing date of an earlier filed application under 35 U.S.C. 120, 121 or 365(c), the 20-year term of that application will be based upon the filing date of the earliest U.S. application that the application makes reference to under 35 U.S.C. 120, 121 or 365(c). (35 U.S.C. 154(a)(2) does not take into account, for the determination of the patent term, any application on which priority is claimed under 35 U.S.C. 119, 365(a) or 365(b).) For a c-i-p application, applicant should review whether any claim in the patent that will issue is supported by an earlier application and, if not, the applicant should consider canceling the reference to the earlier filed application. The term of a patent is not based on a claim-by-claim approach. See Notice of April 14, 1995, 60 Fed. Reg. 20,195, at 20,205.

WARNING: When the last day of pendency of a provisional application falls on a Saturday, Sunday, or Federal holiday within the District of Columbia, any nonprovisional application claiming benefit of the provisional application must be filed prior to the Saturday, Sunday, or Federal holiday within the District of Columbia. See 37 C.F.R. § 1.78(a)(3).

- ☒ The new application being transmitted claims the benefit of prior U.S. application(s). Enclosed are ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

3. Papers Enclosed

- A. Required for filing date under 37 C.F.R. § 1.53(b) (Regular) or 37 C.F.R. § 1.153 (Design) Application

12 Pages of specification

7 Pages of claims

10 Sheets of drawing

WARNING: DO NOT submit original drawings. A high quality copy of the drawings should be supplied when filing a patent application. The drawings that are submitted to the Office must be on strong, white, smooth, and non-shiny paper and meet the standards according to § 1.84. If corrections to the drawings are necessary, they should be made to the original drawing and a high-quality copy of the corrected original drawing then submitted to the Office. Only one copy is required or desired. For comments on proposed then-new 37 CFR 1.84, see Notice of March 9, 1988 (1990 O.G. 57-62).

NOTE: "Identifying indicia, if provided, should include the application number or the title of the invention, inventor's name, docket number (if any), and the name and telephone number of a person to call if the Office is unable to match the drawings to the proper application. This information should be placed on the back of each sheet of drawing a minimum distance of 1.5 cm. (5/8 inch) down from the top of the page . . ." 37 C.F.R. 1.84(c)).

(complete the following, if applicable)

- ☐ The enclosed drawing(s) are photograph(s), and there is also attached a "PETITION TO ACCEPT PHOTOGRAPH(S) AS DRAWING(S)." 37 C.F.R. 1.84(b).
- ☒ formal
- ☐ informal

B. Other Papers Enclosed

____ Pages of declaration and power of attorney

1 Pages of abstract

____ Other

4. Additional papers enclosed

- ☐ Amendment to claims
- ☐ Cancel in this applications claims _____ before calculating the filing fee. (At least one original independent claim must be retained for filing purposes.)
- ☐ Add the claims shown on the attached amendment. (Claims added have been numbered consecutively following the highest numbered original claims.)
- ☐ Preliminary Amendment
- ☐ Information Disclosure Statement (37 C.F.R. 1.98)
- ☐ Form PTO-1449 (PTO/SB/08A and 08B)
- ☐ Citations

- ☐ Declaration of Biological Deposit
- ☐ Submission of "Sequence Listing," computer readable copy and/or amendment pertaining thereto for biotechnology invention containing nucleotide and/or amino acid sequence.
- ☐ Authorization of Attorney(s) to Accept and Follow Instructions from Representative
- ☐ Special Comments
- ☐ Other

5. Declaration or oath (including power of attorney)

NOTE: A newly executed declaration is not required in a continuation or divisional application provided that the prior nonprovisional application contained a declaration as required, the application being filed is by all or fewer than all the inventors named in the prior application, there is no new matter in the application being filed, and a copy of the executed declaration filed in the prior application (showing the signature or an indication thereon that it was signed) is submitted. The copy must be accompanied by a statement requesting deletion of the names of person(s) who are not inventors of the application being filed. If the declaration in the prior application was filed under § 1.47, then a copy of that declaration must be filed accompanied by a copy of the decision granting § 1.47 status or, if a nonsigning person under § 1.47 has subsequently joined in a prior application, then a copy of the subsequently executed declaration must be filed. See 37 C.F.R. §§ 1.63(d)(1)-(3).

NOTE: A declaration filed to complete an application must be executed, identify the specification to which it is directed, identify each inventor by full name including family name and at least one given name, without abbreviation together with any other given name or initial, and the residence, post office address and country or citizenship of each inventor, and state whether the inventor is a sole or joint inventor. 37 C.F.R. § 1.63(a)(1)-(4).

☒ Enclosed

Executed by

(check all applicable boxes)

- ☐ inventor(s).
- ☐ legal representative of inventor(s).
37 CFR 1.42 or 1.43.
- ☐ joint inventor or person showing a proprietary interest on behalf of inventor who refused to sign or cannot be reached.
- ☐ This is the petition required by 37 CFR 1.47 and the statement required by 37 CFR 1.47 is also attached. See item 13 below for fee.

☐ Not Enclosed.

NOTE: Where the filing is a completion in the U.S. of an International Application or where the completion of the U.S. application contains subject matter in addition to the International Application, the application may be treated as a continuation or continuation-in-part, as the case may be, utilizing ADDED PAGE FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION CLAIMED.

- ☐ Application is made by a person authorized under 37 C.F.R. 1.41(c) on behalf of all the above named inventor(s).

(The declaration or oath, along with the surcharge required by 37 CFR 1.16(e) can be filed subsequently).

- ☐ Showing that the filing is authorized.
(not required unless called into question. 37 CFR 1.41(d))

6. Inventorship Statement

WARNING: If the named inventors are each not the inventors of all the claims an explanation, including the ownership of the various claims at the time the last claimed invention was made, should be submitted.

The inventorship for all the claims in this application are:

☒ The same.

or

☐ Not the same. An explanation, including the ownership of the various claims at the time the last claimed invention was made,

☐ is submitted.

☐ will be submitted.

7. Language

NOTE: An application including a signed oath or declaration may be filed in a language other than English. An English translation of the non-English language application and the processing fee of \$130.00 required by 37 CFR 1.17(k) is required to be filed with the application, or within such time as may be set by the Office. 37 CFR 1.52(d).

☒ English

☐ Non-English

☐ The attached translation includes a statement that the translation is accurate. 37 C.F.R. 1.52(d).

8. Assignment

☐ An assignment of the invention to _____

☐ is attached. A separate ☐ "COVER SHEET FOR ASSIGNMENT (DOCUMENT) ACCOMPANYING NEW PATENT APPLICATION" or ☐ FORM PTO 1595 is also attached.

☐ will follow.

NOTE: "If an assignment is submitted with a new application, send two separate letters—one for the application and one for the assignment." Notice of May 4, 1990 (1114 O.G. 77-78).

WARNING: A newly executed "CERTIFICATE UNDER 37 CFR 3.73(b)" must be filed when a continuation-in-part application is filed by an assignee. Notice of April 30, 1993, 1150 O.G. 62-64.

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9. Certified Copy

Certified copy(ies) of application(s)

Country	Appln. No.	Filed
Country	Appln. No.	Filed
Country	Appln. No.	Filed

from which priority is claimed

- ☐ is (are) attached.
☐ will follow.

NOTE: The foreign application forming the basis for the claim for priority must be referred to in the oath or declaration. 37 CFR 1.55(a) and 1.63.

NOTE: This item is for any foreign priority for which the application being filed directly relates. If any parent U.S. application or International Application from which this application claims benefit under 35 U.S.C. 120 is itself entitled to priority from a prior foreign application, then complete item 18 on the ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

10. Fee Calculation (37 C.F.R. 1.16)

A. ☒ Regular application

CLAIMS AS FILED			
Number filed	Number Extra	Rate	Basic Fee 37 C.F.R. 1.16(a) \$790.00
Total			
Claims (37 CFR 1.16(c)) 25 - 20 = 5	×	\$ 22.00	110.00
Independent			
Claims (37 CFR 1.16(b)) 4 - 3 = 1	×	\$ 82.00	82.00
Multiple dependent claim(s), if any (37 CFR 1.16(d))	+	\$270.00	

- ☐ Amendment cancelling extra claims is enclosed.
☐ Amendment deleting multiple-dependencies is enclosed.
☐ Fee for extra claims is not being paid at this time.

NOTE: If the fees for extra claims are not paid on filing they must be paid or the claims cancelled by amendment, prior to the expiration of the time period set for response by the Patent and Trademark Office in any notice of fee deficiency. 37 CFR 1.16(d).

Filing Fee Calculation

\$ 982.00

B. ☐ Design application (\$330.00—37 CFR 1.16(f))

Filing Fee Calculation

\$ _____

C. ☐ Plant application (\$540.00—37 CFR 1.16(g))

Filing fee calculation

\$ _____

11. Small Entity Statement(s)

- ☐ Statement(s) that this is a filing by a small entity under 37 CFR 1.9 and 1.27 is (are) attached.

WARNING: "Status as a small entity must be specifically established in each application or patent in which the status is available and desired. Status as a small entity in one application or patent does not affect any other application or patent, including applications or patents which are directly or indirectly dependent upon the application or patent in which the status has been established. The refiling of an application under § 1.53 as a continuation, division, or continuation-in-part (including a continued prosecution application under § 1.53(d)), or the filing of a reissue application requires a new determination as to continued entitlement to small entity status for the continuing or reissue application. A nonprovisional application claiming benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) of a prior application, or a reissue application may rely on a statement filed in the prior application or in the patent if the nonprovisional application or the reissue application includes a reference to the statement in the prior application or in the patent or includes a copy of the statement in the prior application or in the patent and status as a small entity is still proper and desired. The payment of the small entity basic statutory filing fee will be treated as such a reference for purposes of this section." 37 C.F.R. § 1.28(a)(2).

(complete the following, if applicable)

- ☒ Status as a small entity was claimed in prior application
08 / 742,133, filed on 10/31/96, from which benefit
is being claimed for this application under:

✓ 35 U.S.C. ☐ 119(e),
☒ 120,
☐ 121,
☐ 365(c),

and which status as a small entity is still proper and desired.

- ☒ A copy of the statement in the prior application is included.

Filing Fee Calculation (50% of A, B or C above)

\$ 491.00

NOTE: Any excess of the full fee paid will be refunded if small entity status is established and a refund request are filed within 2 months of the date of timely payment of a full fee. The two-month period is not extendable under § 1.136. 37 CFR 1.28(a).

12. Request for International-Type Search (37 C.F.R. 1.104(d))

(complete, if applicable)

- ☐ Please prepare an international-type search report for this application at the time when national examination on the merits takes place.

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13. Fee Payment Being Made at This Time

☐ Not Enclosed

☐ No filing fee is to be paid at this time.

(This and the surcharge required by 37 C.F.R. 1.16(e) can be paid subsequently.)

☒ Enclosed

☒ Filing fee \$ 491.00

☐ Recording assignment
(\$40.00; 37 C.F.R. 1.21(h))
(See attached "COVER SHEET FOR
ASSIGNMENT ACCOMPANYING NEW
APPLICATION".) \$ _____

☐ Petition fee for filing by other than all the
inventors or person on behalf of the inventor
where inventor refused to sign or cannot be
reached
(\$130.00; 37 C.F.R. 1.47 and 1.17(l)) \$ _____

☐ For processing an application with a
specification in
a non-English language
(\$130.00; 37 C.F.R. 1.52(d) and 1.17(k)) \$ _____

☐ Processing and retention fee
(\$130.00; 37 C.F.R. 1.53(d) and 1.21(l)) \$ _____

☐ Fee for international-type search report
(\$40.00; 37 C.F.R. 1.21(e)) \$ _____

NOTE: 37 CFR 1.21(l) establishes a fee for processing and retaining any application that is abandoned for failing to complete the application pursuant to 37 CFR 1.53(f) and this, as well as the changes to 37 CFR 1.53 and 1.78(a)(1), indicate that in order to obtain the benefit of a prior U.S. application, either the basic filing fee must be paid, or the processing and retention fee of § 1.21(l) must be paid, within 1 year from notification under § 53(f).

Total fees enclosed \$ 491.00

14. Method of Payment of Fees

☒ Check in the amount of \$ 491.00

☐ Charge Account No. _____ in the amount of
\$ _____

A duplicate of this transmittal is attached.

NOTE: Fees should be itemized in such a manner that it is clear for which purpose the fees are paid. 37 CFR 1.22(b).

(Application Transmittal [4-1]—page 8 of 11)

15. Authorization to Charge Additional Fees

WARNING: If no fees are to be paid on filing, the following items should not be completed.

WARNING: Accurately count claims, especially multiple dependent claims, to avoid unexpected high charges, if extra claim charges are authorized.

- ☒ The Commissioner is hereby authorized to charge the following additional fees by this paper and during the entire pendency of this application to Account No. 50-0298:

☒ 37 C.F.R. 1.16(a), (f) or (g) (filing fees)

☒ 37 C.F.R. 1.16(b), (c) and (d) (presentation of extra claims)

NOTE: Because additional fees for excess or multiple dependent claims not paid on filing or on later presentation must only be paid or these claims cancelled by amendment prior to the expiration of the time period set for response by the PTO in any notice of fee deficiency (37 CFR 1.16(d)), it might be best not to authorize the PTO to charge additional claim fees, except possibly when dealing with amendments after final action.

☐ 37 C.F.R. 1.16(e) (surcharge for filing the basic filing fee and/or declaration on a date later than the filing date of the application)

☐ 37 C.F.R. §§ 1.17(a)(1)–(5) (extension fees pursuant to § 1.136(a)).

☐ 37 C.F.R. 1.17 (application processing fees)

NOTE: “. . . A written request may be submitted in an application that is an authorization to treat any concurrent or future reply, requiring a petition for an extension of time under this paragraph for its timely submission, as incorporating a petition for extension of time for the appropriate length of time. An authorization to charge all required fees, fees under § 1.17, or all required extension of time fees will be treated as a constructive petition for an extension of time in any concurrent or future reply requiring a petition for an extension of time under this paragraph for its timely submission. Submission of the fee set forth in § 1.17(a) will also be treated as a constructive petition for an extension of time in any concurrent reply requiring a petition for an extension of time under this paragraph for its timely submission.” 37 C.F.R. § 1.136(a)(3).

☐ 37 C.F.R. 1.18 (issue fee at or before mailing of Notice of Allowance, pursuant to 37 C.F.R. 1.311(b))

NOTE: Where an authorization to charge the issue fee to a deposit account has been filed before the mailing of a Notice of Allowance, the issue fee will be automatically charged to the deposit account at the time of mailing the notice of allowance. 37 CFR 1.311(b).

NOTE: 37 CFR 1.28(b) requires “Notification of any change in status resulting in loss of entitlement to small entity status must be filed in the application . . . prior to paying, or at the time of paying, . . . the issue fee. . . .” From the wording of 37 CFR 1.28(b), (a) notification of change of status must be made even if the fee is paid as “other than a small entity” and (b) no notification is required if the change is to another small entity.

16. Instructions as to Overpayment

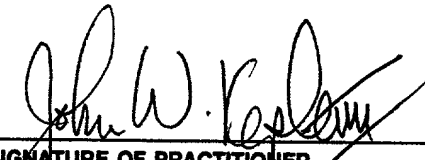
NOTE: "... Amounts of twenty-five dollars or less will not be returned unless specifically requested within a reasonable time, nor will the payer be notified of such amounts; amounts over twenty-five dollars may be returned by check or, if requested, by credit to a deposit account." 37 C.F.R. § 1.26(a).

- ☐ Credit Account No. _____
- ☒ Refund

Reg. No. 30397

Tel. No. (314) 727-7676

Customer No.



SIGNATURE OF PRACTITIONER

John W. Kepler III

(type or print name of attorney)

7733 Forsyth Blvd 12th Floor

P.O. Address

St Louis MO 63105

☒ **Incorporation by reference of added pages**

(check the following item if the application in this transmittal claims the benefit of prior U.S. application(s) (including an international application entering the U.S. stage as a continuation, divisional or C-I-P application) and complete and attach the ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED)

- ☒ **Plus Added Pages for New Application Transmittal Where Benefit of Prior U.S. Application(s) Claimed**

Number of pages added 5

- ☐ **Plus Added Pages for Papers Referred to in Item 4 Above**

Number of pages added _____

- ☐ **Plus added pages deleting names of inventor(s) named in prior application(s) who is/are no longer inventor(s) of the subject matter claimed in this application.**

Number of pages added _____

- ☐ **Plus "Assignment Cover Letter Accompanying New Application"**

Number of pages added _____

- ☐ **Statement Where No Further Pages Added**

(if no further pages form a part of this Transmittal, then end this Transmittal with this page and check the following item)

- ☐ **This transmittal ends with this page.**

**ADDED PAGES FOR APPLICATION TRANSMITTAL WHERE BENEFIT OF
PRIOR U.S. APPLICATION(S) CLAIMED**

NOTE: See 37 CFR 1.78.

17. Relate Back

WARNING: If an application claims the benefit of the filing date of an earlier filed application under 35 U.S.C. 120, 121 or 365(c), the 20-year term of that application will be based upon the filing date of the earliest U.S. application that the application makes reference to under 35 U.S.C. 120, 121 or 365(c). (35 U.S.C. 154(a)(2) does not take into account, for the determination of the patent term, any application on which priority is claimed under 35 U.S.C. 119, 365(a) or 365(b).) For a c-i-p application, applicant should review whether any claim in the patent that will issue is supported by an earlier application and, if not, the applicant should consider canceling the reference to the earlier filed application. The term of a patent is not based on a claim-by-claim approach. See Notice of April 14, 1995, 60 Fed. Reg. 20,195, at 20,205.

(complete the following, if applicable)

- ☒ Amend the specification by inserting, before the first line, the following sentence:

A. 35 U.S.C. 119(e)

NOTE: "Any nonprovisional application claiming the benefit of one or more prior filed copending provisional applications must contain or be amended to contain in the first sentence of the specification following the title a reference to each such prior provisional application, identifying it as a provisional application, and including the provisional application number (consisting of series code and serial number)." 37 C.F.R. § 1.78(a)(4).

- ☐ "This application claims the benefit of U.S. Provisional Application(s) No(s).:

APPLICATION NO(S).:**FILING DATE**

_____ / _____	_____ "
_____ / _____	_____ "
_____ / _____	_____ "

B. 35 U.S.C. 120, 121 and 365(c)

NOTE: "Except for a continued prosecution application filed under § 1.53(d), any nonprovisional application claiming the benefit of one or more prior filed copending nonprovisional applications or international applications designating the United States of America must contain or be amended to contain in the first sentence of the specification following the title a reference to each such prior application, identifying it by application number (consisting of the series code and serial number) or international application number and international filing date and indicating the relationship of the applications. . . . Cross-references to other related applications may be made when appropriate." (See § 1.14(a)). 37 C.F.R. § 1.78(a)(2).

☒ "This application is a

- ☒ continuation
☐ continuation-in-part
☐ divisional

of copending application(s)

☒ application number 0 8/ 742,133 filed on 10/31/96 "

☐ International Application _____ filed on _____ and which designated the U.S."

NOTE: The proper reference to a prior filed PCT application that entered the U.S. national phase is the U.S. serial number and the filing date of the PCT application that designated the U.S.

NOTE: (1) Where the application being transmitted adds subject matter to the International Application, then the filing can be as a continuation-in-part or (2) if it is desired to do so for other reasons then the filing can be as a continuation.

NOTE: The deadline for entering the national phase in the U.S. for an international application was clarified in the Notice of April 28, 1987 (1079 O.G. 32 to 46) as follows:

"The Patent and Trademark Office considers the International application to be pending until the 22nd month from the priority date if the United States has been designated and no Demand for International Preliminary Examination has been filed prior to the expiration of the 19th month from the priority date and until the 32nd month from the priority date if a Demand for International Preliminary Examination which elected the United States of America has been filed prior to the expiration of the 19th month from the priority date, provided that a copy of the international application has been communicated to the Patent and Trademark Office within the 20 or 30 month period respectively. If a copy of the international application has not been communicated to the Patent and Trademark Office within the 20 or 30 month period respectively, the international application becomes abandoned as to the United States 20 or 30 months from the priority date respectively. These periods have been placed in the rules as paragraph (h) of § 1.494 and paragraph (i) of § 1.495. A continuing application under 35 U.S.C. 365(c) and 120 may be filed anytime during the pendency of the international application."

☐ "The nonprovisional application designated above, namely application _____ / _____, filed _____, claims the benefit of U.S. Provisional Application(s) No(s).:

APPLICATION NO(S):

FILING DATE

_____ / _____	_____ "
_____ / _____	_____ "
_____ / _____	_____ "

☐ Where more than one reference is made above, please combine all references into one sentence.

18. Relate Back—35 U.S.C. 119 Priority Claim for Prior Application

The prior U.S. application(s), including any prior International Application designating the U.S., identified above in item 17B, in turn itself claim(s) foreign priority(ies) as follows:

Country	Appln. no.	Filed on
---------	------------	----------

The certified copy(ies) has (have)

- ☐ been filed on _____, in prior application 0 / _____, which was filed on _____.
- ☐ is (are) attached.

WARNING: The certified copy of the priority application that may have been communicated to the PTO by the International Bureau may **not** be relied on without any need to file a certified copy of the priority application in the continuing application. This is so because the certified copy of the priority application communicated by the International Bureau is placed in a folder and is not assigned a U.S. serial number unless the national stage is entered. Such folders are disposed of if the national stage is not entered. Therefore, such certified copies may not be available if needed later in the prosecution of a continuing application. An alternative would be to physically remove the priority documents from the folders and transfer them to the continuing application. The resources required to request transfer, retrieve the folders, make suitable record notations, transfer the certified copies, enter and make a record of such copies in the Continuing Application are substantial. Accordingly, the priority documents in folders of international applications that have not entered the national stage may not be relied on. Notice of April 28, 1987 (1079 O.G. 32 to 46).

19. Maintenance of Copendency of Prior Application

NOTE: The PTO finds it useful if a copy of the petition filed in the prior application extending the term for response is filed with the papers constituting the filing of the continuation application. Notice of November 5, 1985 (1060 O.G. 27).

A. ☐ Extension of time in prior application

(This item **must** be completed and the papers filed in the prior application, if the period set in the prior application has run.)

- ☐ A petition, fee and response extends the term in the pending prior application until _____.
- ☐ A **copy** of the petition filed in prior application is attached.

B. ☐ Conditional Petition for Extension of Time in Prior Application

(complete this item, if previous item not applicable)

- ☐ A conditional petition for extension of time is being filed in the pending prior application.
- ☐ A **copy** of the conditional petition filed in the prior application is attached.

20. Further Inventorship Statement Where Benefit of Prior Application(s) Claimed

(complete applicable item (a), (b) and/or (c) below)

- (a) ☒ This application discloses and claims only subject matter disclosed in the prior application whose particulars are set out above and the inventor(s) in this application are

☒ the same.

- ☐ less than those named in the prior application. It is requested that the following inventor(s) identified for the prior application be deleted:

(type name(s) of inventor(s) to be deleted)

- (b) ☐ This application discloses and claims additional disclosure by amendment and a new declaration or oath is being filed. With respect to the prior application, the inventor(s) in this application are

☐ the same.

- ☐ the following additional inventor(s) have been added:

(type name(s) of inventor(s) to be added)

- (c) The inventorship for all the claims in this application are

☒ the same.

- ☐ not the same. An explanation, including the ownership of the various claims at the time the last claimed invention was made

☐ is submitted.

☐ will be submitted.

21. Abandonment of Prior Application (if applicable)

- ☐ Please abandon the prior application at a time while the prior application is pending, or when the petition for extension of time or to revive in that application is granted, and when this application is granted a filing date, so as to make this application copending with said prior application.

NOTE: According to the Notice of May 13, 1983 (103, TMOG 6-7), the filing of a continuation or continuation-in-part application is a proper response with respect to a petition for extension of time or a petition to revive and should include the express abandonment of the prior application conditioned upon the granting of the petition and the granting of a filing date to the continuing application.

22. Petition for Suspension of Prosecution for the Time Necessary to File an Amendment

WARNING: "The claims of a new application may be finally rejected in the first Office action in those situations where (1) the new application is a continuing application of, or a substitute for, an earlier application, and (2) all the claims of the new application (a) are drawn to the same invention claimed in the earlier application, and (b) would have been properly finally rejected on the grounds of art of record in the next Office action if they had been entered in the earlier application." MPEP, § 706.07(b), 6th ed., rev.2.

NOTE: Where it is possible that the claims on file will give rise to a first action final for this continuation application and for some reason an amendment cannot be filed promptly (e.g., experimental data is being gathered) it may be desirable to file a petition for suspension of prosecution for the time necessary.

(check the next item, if applicable)

- ☐ There is provided herewith a Petition To Suspend Prosecution for the Time Necessary to File An Amendment (New Application Filed Concurrently)

23. Small Entity (37 CFR § 1.28(a))

- ☒ Applicant has established small entity status by the filing of a statement in parent application 08 / 742,133 on 10/31/96

- ☒ A copy of the statement previously filed is included.

WARNING: See 37 CFR § 1.28(a).

24. NOTIFICATION IN PARENT APPLICATION OF THIS FILING

- ☒ A notification of the filing of this
(check one of the following)

- ☒ continuation
☐ continuation-in-part
☐ divisional

is being filed in the parent application, from which this application claims priority under 35 U.S.C. § 120.

COPY

Attorney's Docket No. 01B147/89 003PT96/1

Applicants: Robert D. Boehlow

Serial No.: Not Yet Known

Filed: October 31, 1996

For: KEYLESS DEADBOLT LOCK ENGAGING DEVICE

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY
STATUS [37 CFR 1.9 (f) and 1.27 (b)] - INDEPENDENT INVENTOR

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 36 CFR 1.9 (c) for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, to the Patent and Trademark Office with regard to the invention entitled KEYLESS DEADBOLT LOCK ENGAGING DEVICE described in the specification filed October 31, 1996.

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or are under an obligation under contract or law to assign, grant, convey or license any rights in the invention is listed below:

- ☒ (x) no such person, concern or organization.
- ☐ () persons, concerns or organizations listed below

FULL NAME

ADDRESS

- ☐ () INDIVIDUAL
- ☐ () SMALL BUSINESS CONCERN
- ☐ () NONPROFIT ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. [37 CFR 1.28 (b)]

COPY

I hereby declare that all statements made herein of our my knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF INVENTOR: Robert D. Boehlow

SIGNATURE: Robert D. Boehlow DATE: 10/31/96

KEYLESS DEADBOLT LOCK ENGAGING DEVICE

BACKGROUND OF THE INVENTION

The present invention relates in general to a keyless deadbolt lock engaging device for use in combination with a conventional deadbolt lock tumbler assembly, and pertains more particularly to a keyless engaging device which is biased to return to a position in which the device does not interfere with disengagement of the deadbolt by a key. The keyless engaging device of the present invention is an improvement over known locking devices as the biasing prevents the lock from binding up and thereby making disengagement of the deadbolt difficult.

Deadbolt locks have become common because of the added security which they provide. However, deadbolts have not become as convenient as other types of locks, for example automobile door locks and tubular style entryway door locks. These types of locks can be locked from the inside while exiting, thereby making it unnecessary to have the key in hand.

Several devices have been developed in an attempt to overcome the need for a key when engaging the deadbolt. However, each prior device has included one or more of the following design problems.

One of the most serious problems with prior deadbolt engaging devices is the tendency of the device to cause "binding" of the lock. Binding of the lock assembly not only makes disengagement of the lock becomes jammed. A lock could become jammed while someone is on the opposite side of the door from the device, therefor unable to manually manipulate the mechanism free. In addition, the force necessary to overcome binding of the lock accelerates wear of the internal mechanism.

Patent No. 3,539,548 to Kendrick discloses a lock with a rotatable exterior ring. The ring is rotated to project the deadbolt, but cannot be retracted by a reverse rotation until the deadbolt is disengaged. Upon attempting to disengage the deadbolt with a key, the user would be hampered by the rotatable ring, which would bind up the deadbolt assembly.

U.S. Patent No. 5,010,749 to Lin is another example of a device which creates a binding effect in the lock assembly. Further, as the Lin '749 design allows the rotatable ring to move freely in either direction, the user could become confused and unsure as to whether the bolt has been fully engaged.

A similar design in U.S. Patent No. 5,186,030 to Lin has other disadvantages in addition to lock binding. First, the device is not reversible to accommodate both right and left handed doors. Supplying duplicate mirror image parts therefore becomes necessary.

Second, the Lin '030 device would allow water to enter and be trapped within the device, leading to corrosion and/or freezing of the mechanism.

Another disadvantage of prior devices is that some designs are dependent on the projection speed imparted by the user. In these designs, the deadbolt is often not fully projected, leaving the lock easily retracted without a key.

Still another disadvantage of prior devices is the complexity of the devices. The use of a large number of intricate parts makes these devices extremely complex and difficult to assemble, expensive to manufacture, and may require specialized tools. These locks may also require extensive hole cutting on the door to be fitted with the lock and device.

Accordingly, it is an object of the present invention to provide a keyless deadbolt lock engagement device which is biased to return the device to an original position to prevent binding of the lock.

It is another object of the present invention to provide a deadbolt engaging device from being jammed by incorrect rotation, and possibly trapping a person.

It is still another object of the present invention to provide a deadbolt engaging device whose keyless operation has the same feel to the user as when using a key, without an odd or binding feeling.

It is a further object of the present invention to provide a deadbolt engaging device which will not allow moisture to become trapped within the device, thereby preventing corrosion or freezing of the mechanism.

It is still a further object of the present invention to provide a deadbolt engaging device which does not depend on the rotation or projection speed by the user, thereby assuring complete engagement of the deadbolt at each use.

It is another object of the present invention to provide a design which is less susceptible to a blow from a hammer, a twisting force from a wrench or similar tool, or drilling of the lock, thereby increasing security.

It is still another object of the present invention to provide a device which fits in the standard deadbolt door cutout.

It is a further object of the present invention to provide a device which has the basic appearance of a conventional lock.

It is still a further object of the present invention to provide a device which is of simple construction, is relatively inexpensive, and has long lasting reliability.

It is another object of the present invention is to provide a device which is obvious in its operation, requires only one handed operation, and which has a positive stop to transmit to the operator that the bolt is fully projected.

SUMMARY OF THE INVENTION

To accomplish the foregoing and other objects of this invention there is provided a keyless device for engagement of the deadbolt of a conventional lock assembly.

The device of the present invention allows simple one handed engagement of the deadbolt lock without the use of a key. The keyless engagement device is assembled around the conventional deadbolt lock tumbler assembly, and is fitted into the standard door cutout. The keyless device includes a rotatable ring extending substantially around the periphery of the device. At rest the rotatable ring is biased in an original starting position. Upon overcoming the bias, the rotatable ring is moved to a second or engaging position in which the deadbolt is projected into an engaged position. Upon release of the rotatable ring the ring is biased back to the original position, while at the same time the deadbolt remains engaged. The biasing back of the device prevents the lock from binding or jamming.

The device of the present invention accommodates doors that open in either direction, as the parts can be inserted into the lock as a whole in one of two possible directions.

These and other objects of the present invention will be better understood and appreciated from the following detailed description of the embodiments selected for purposes of illustration and shown in the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an exploded view of a preferred embodiment of the present invention. The embodiment illustrated utilizes a coiled spring and spring retaining ring as the biasing mechanism.

FIG. 2 is a cross sectional view along line 2-2 of the invention illustrated in **FIG. 3**, the device being in the deadbolt disengaged position.

FIG. 3 is a cross sectional view along line 3-3 of the invention illustrated in **FIG. 2**, the device being in the deadbolt disengaged position.

FIG. 4 is a cross sectional view along line 4-4 of the invention illustrated in **FIG. 5**, the device being in the deadbolt engaged position.

FIG. 5 is a cross sectional view along line 5-5 of the invention illustrated in **FIG. 4**, the device being in the deadbolt engaged position.

FIG. 6 is a cross sectional view along line 6-6 of another preferred embodiment of the rotatable ring of the present invention in the deadbolt disengaged position shown in **FIG. 7**. The biasing means is not illustrated.

FIG. 7 is a cross sectional view along line 7-7 of the preferred embodiment illustrated in **FIG. 6**, in the deadbolt disengaged position. The biasing means is not illustrated.

FIG. 8 is a front view of the embodiment illustrated in **FIG. 6**.

FIG. 9 is a cross sectional view along line 9-9 of the preferred embodiment illustrated in **FIG. 10**, in the deadbolt engaged position. The biasing means is not illustrated.

FIG. 10 is a cross sectional view along line 10-10 of the preferred embodiment illustrated in **FIG. 9**, in the deadbolt engaged position. The biasing means is not illustrated.

FIG. 11 is a cross sectional view along line 11-11 of another preferred embodiment of the rotatable ring of the present invention in the deadbolt disengaged position shown in **FIG. 12**. The biasing means is not illustrated.

FIG. 12 is a cross sectional view along line 12-12 of the preferred embodiment illustrated in **FIG. 11**, in the deadbolt disengaged position. The biasing means is not illustrated.

FIG. 13 is a front view of the embodiment illustrated in **FIG. 11**.

FIG. 14 is a cross sectional view along line 14-14 of the preferred embodiment illustrated in **FIG. 15**, in the deadbolt engaged position. The biasing means is not illustrated.

FIG. 15 is a cross sectional view along line 15-15 of the preferred embodiment illustrated in **FIG. 14**, in the deadbolt engaged position. The biasing means is not illustrated.

FIG. 16 is a cross sectional view of another preferred embodiment of the rotatable ring of the present invention in the deadbolt disengaged position. The biasing means is not illustrated.

FIG. 17 is a cross sectional view along line 17-17 of the preferred embodiment illustrated in **FIG. 16**, in the deadbolt disengaging position. The biasing means is not illustrated.

FIG. 18 is a cross sectional view of another preferred embodiment of the biasing means of the present invention.

FIG. 19 is a cross sectional view of another preferred embodiment of the biasing means of the present invention.

FIG. 20 is a cross sectional view of another preferred embodiment of the biasing means of the present invention.

FIG. 21 is a cross sectional view of another preferred embodiment of the biasing means of the present invention.

DETAILED DESCRIPTION

Referring now to the drawings there is shown a preferred embodiment for the keyless deadbolt lock engaging device of the present invention. Unless otherwise noted, the term "inside" refers to that part nearest the door when assembled, the term "outside" refers to that part furthest from the door when assembled.

The device **10** shown in **FIGS. 1-5** is constructed to be assembled about a conventional deadbolt lock tumbler assembly **12** having a face plate **14**, threaded holes **16, 18** and an axial actuator **20**.

A body **22**, preferably constructed of zinc by a die casting process, includes an aperture **26** into which the tumbler assembly **12** is inserted, and an inner surface **24**. Body ring **22** further includes step projections **28** which may be integral to the body **22**. Step projections **28** prevent the lock tumbler from rotating within the present invention. A channel portion **36** includes shoulder grooves **32, 34**. A shoulder or rim **38** of a decreased diameter and outer ring surface **40** form bearing surfaces, shoulder **38** further including inner body surface **30**.

Encased within channel **36** is a spring ring **42**, preferably constructed of a nylon material by plastic injection molding, having a spring stop **44**, a cut or slice **46** and a notch **48**.

A return spring **50** is coiled about spring ring **42**, the return spring **50** being fitted onto spring ring **42** by way of cut **46**. A helical coiled compression spring illustrated in **FIGS. 1-5**. The return spring **50** is located between the notched portion **48** and the spring stop **44**.

The spring ring **42**, return spring **50** assembly is held in position by the shoulder grooves **32, 34**, as seen in **FIG. 2**. Return spring **50** is compressed at one end by shoulder groove **32**, while the compression of the return spring **50** forces stop **44** against shoulder groove **34**. Surface **30** of rim **38** provides a contact surface for the section of spring ring **42** which is not sheathed by return spring **50**.

A rotatable ring 52, preferably constructed of zinc by a die casting process, includes an inwardly projecting center projection 54, which is assembled to rotate against the bearing surfaces 38, 40 of body 22. The ring 52 includes an inwardly extending radial finger 56 which is restricted axially by inner rim 38 and rotationally by grooves 32, 34. Radial finger 56 has projecting portions 58 and a catch 60 which fits notch 48 of spring ring 50.

A radial actuator 62, preferably cut from sheet steel, includes a center aperture or cutout 66 and an arm 64. The aperture 62 accepts the lock tumbler axial actuator 20. Arm 64 contacts the radial finger 56 of rotatable ring 52.

A locator ring 70, preferably constructed of zinc by a die casting process, includes a shoulder portion 72 which is accepted into the door lock hole. Outer ring surface 76 and a surface 78 act as bearing surfaces for rotatable ring 52. The surface 78 of locator ring 70 fits against inner surface 24 of the body 22. The entire assembly is clamped together with the locator ring 70 secured in the door cutout by two screws (not shown) on the door interior and tightened into two threaded holes 16, 18 of lock tumbler 12. The body 22 and locator ring 70 together sandwich loosely the rotatable ring 52, the radial actuator 62 and the spring ring 42, return spring 50 assembly.

FIGS 2 and 3 illustrate the deadbolt (not shown) in the unlocked or disengaged position. Radial finger 56 rests against shoulder groove 32. The return spring 50 is under light compression and forced into an arc by spring ring 42 through its center and both are held stationery. Rotatable ring 52 is held in a stationery position as the radial finger 56 is connected to spring ring 42 by notch 48 and catch 60. The rotatable ring 52 is freely rotatable between body 22 and locator ring 70, but is constrained to rotate between shoulder grooves 32, 34 by radial finger 56. The radial actuator 62 is in contact with radial finger 56, and is also shown in the bolt retracted or disengaged position.

In order to engage the deadbolt, the user must rotate the rotatable ring 52 clockwise to overcome the bias of the spring ring 42 return spring 50 assembly, to reach the position as shown in FIGS. 4 and 5. As the rotatable ring 52 is turned, the radial finger 56 forces the radial actuator 62 to rotate the tumbler axial actuator 20, thereby projecting the deadbolt into the locked, engaged position. The radial finger 56 pulls the spring ring 42, through the interaction of catch 48 and notch 60, around a circular path. The rotation causes the spring stop 44 to compress the return spring 50. This causes the user to feel increasing resistance, or bias, through the rotatable ring 52. Rotation of the rotatable ring 52 is limited to the position shown in FIGS. 4 and 5 by shoulder groove 34, which

acts as a stop for the movement of radial finger 56. Further, the user will “feel” that the tumbler mechanism 12 has projected the bolt, as is felt when using a key.

Upon release of the rotatable ring 52, the compressed return spring 50 will force the spring ring 42 to rotate counter clockwise and pull rotatable ring 52 and radial finger 56 back to the original position (shown in FIGS. 2 and 3) against shoulder groove 32. The radial actuator 62 and tumbler axial actuator 20 remain in the bolt projected position. The biasing of the radial finger 56 away from the radial actuator 62 leaves the lock in position for disengagement of the bolt by a key without any contact or resulting binding effect from the device of the present invention.

The operation of the present invention is very similar to that of a conventional deadbolt lock, whether the lock is a double cylinder lock or of the type with a thumb turn on the interior. In either lock, a key must be utilized to open or lock the door from the outside. However, the present invention allows the door to be locked from the outside without use of a key. A fractional rotation of the rotatable ring 52 projects the bolt into engagement, after which the biasing resulting from the spring ring 42/return spring 50 assembly causes the rotatable ring 52 to return to its original position.

Another embodiment of the present invention is illustrated in a deadbolt disengaged position, FIGS. 6-8, and a deadbolt engaged position, FIGS. 9-10. The body 122 includes a base portion 128 and a face portion 130, the body 122 completely covering and loosely surrounding the rotatable ring 152. The inner surfaces 132, 134 of the body 122 form bearing surfaces for the outer surfaces 142, 144 of the rotatable ring 152.

The rotatable ring 152 is loosely constrained in the axial direction by the body 122 and the locator ring 170. The body 122 is clamped to and located by the locator ring 170 by two screws (not shown) in the lock tumbler assembly 112 as described for the embodiment disclosed above.

The body 122 includes two openings or apertures 146, 148 on the face portion 130, through which two “ears” or rotator projections 150 of the rotatable ring 152 extend. The user grasps the projections 150 with a thumb and forefinger and turns. The arm 164 engages radial finger 156, which is constructed and operates as disclosed above. Arm 164 and finger 156 act so as to force radial actuator 162 to engage, through axial actuator 120 of tumbler assembly 112, the deadbolt. The deadbolt remains engaged, and cannot be disengaged by movement of the rotatable ring 152.

The method of biasing to return the rotatable ring 152 is not illustrated in FIGS. 6-10 for purposes of clarity, however, any of the methods disclosed herein can be applied to this embodiment.

The material and methods used to construct the various components of this embodiment are identical to those disclosed above in the first preferred embodiment.

Another preferred embodiment of the present invention is illustrated in the deadbolt disengaged position in **FIGS. 11-13** and in the deadbolt engaged position in **FIGS. 14 and 15**.

The body **222** includes a channeled shoulder portion **238** which substantially surrounds and provides bearing surfaces for rotatable ring. **252**. The rotatable ring **252** is also loosely constrained in the axial direction by the body **222** and locator ring **270**. The body **222** includes an opening or aperture **246** where the body **222** and the locator ring **270** join. The body **222** is clamped to and located by the locator ring by two outside screws (not shown) in the threaded holes **216, 218** of the lock tumbler **212**.

The rotatable ring **252** includes an "ear" or projection **250** which extends through aperture **246**, the aperture **246** limiting the movement of the projection **250** to 180 degrees or less. The user pushes the projection **250** which turns the rotatable ring **252**. The radial finger **256**, which is constructed and operates as disclosed above, forces radial actuator **262**, in combination with the axial actuator **220**, to engage the deadbolt. The deadbolt remains engaged, and cannot be disengaged by movement of the rotatable ring **252**.

The method of biasing to return the rotatable ring **252** is not illustrated in **FIGS. 11-15** for purposes of clarity, however, any of the methods disclosed herein can be applied to this embodiment. The material and methods used to construct the various components of this embodiment are identical to those disclosed above in the first preferred embodiment.

Another preferred embodiment is illustrated in **FIGS. 16 and 17**, which shows the deadbolt in a semi-projected, half locked state. In this embodiment, the body **322** and the locator ring **370** are constructed and operate in the same manner as described for the first preferred embodiment. The radial finger **356** of rotatable ring **352** interacts with bolt actuator **362** which has a paddle shaped surface **364**. The bolt actuator **362** is directly manipulated by one way contact with an axial extension **358** from the radial finger **356**.

The bolt actuator **362** fits in the bolt assembly **312** and accepts axial actuator **320** as is common practice in the industry. This configuration, as well as the other embodiments described herein, is fully reversible to work with right or left handed doors.

The method of biasing to return the rotatable ring 352 is not illustrated in FIGS. 16 and 17 for purposes of clarity, however, any of the methods disclosed herein can be applied to this embodiment. The material and methods used to construct the various components of this embodiment are identical to those disclosed above in the first preferred embodiment.

FIG. 18 illustrates an alternative preferred embodiment for the biased rotatable ring return mechanism, the device being shown in the deadbolt engaged position. The body 422, rotatable ring 452, radial actuator 462, return spring 450, as well as the locator ring (not shown) operate as described and illustrated for the first preferred embodiment. The spring ring 442 is designed as described for the first preferred embodiment, however, the spring ring 442 is assembled within the device as follows.

The return spring 450 is fitted onto the spring ring 442, and fits and cooperates within the body 422 and rotatable ring 452 as described for the first preferred embodiment. However, the spring ring 442 is pushed by the radial finger 456 around a circular path, the rotation compressing return spring 450 between shoulder groove 432 and spring stop 444. Upon release of the rotatable ring 452, the return spring 450 rotates the rotatable ring 452 back to the original position. The deadbolt remains projected and cannot be disengaged by rotation of the rotatable ring 452. The material and methods used to construct the various components of this embodiment are identical to those disclosed above in the first preferred embodiment.

FIG. 19 illustrates another preferred embodiment of the biased rotatable ring return mechanism. The body 522, constructed as in the first preferred embodiment, further includes a body slot 546. (Body slot 546' is provided to allow the lock to be used with either a right or left handed door.) The radial finger 558 of rotatable ring 552 includes a radial finger slot 548, and is adjacent to radial actuator 562.

The return spring 450 is a torsional type and has two elongated members 542, 544. One elongated member 544 extends down and is held in place from rotating by the body slot 546. The other elongated member 542 extends at an angle and has a means to connect into radial finger slot 548. The two elongated members 542, 544 join at a coiled member 540 that is generally held around axial actuator 520. When the rotatable ring 552 is rotated to project the bolt, the radial finger slot 548 forces one elongated member 542 of return spring 550 to rotate and provide a torsional counter force while the other elongated member 544 remains stationery.

Upon release of the rotatable ring 552, the return spring 550 rotates the rotatable ring 552 back to the original position. The deadbolt remains projected and cannot be disengaged by rotation of the rotatable ring 552. The material and methods used to construct the various components of this embodiment are identical to those disclosed above in the first preferred embodiment.

FIG. 20 illustrates an alternative embodiment of the biased rotatable ring return mechanism. The device is shown in the deadbolt retracted, disengaged state. The rotatable ring 652 is constructed substantially around and in cooperating relation to the body 622 in the same way as described for the first preferred embodiment. The rotatable ring 652 includes a radial finger 658 extending inward and being adjacent to radial actuator 662, the radial finger 658 having a radial finger slot 648. The return spring 650 is of the coiled constant force type, as is known in the art is wound to a tension proper for the particular application. A spring wind retainer 646 is provided and has a means to wrap around a portion of the return spring 650 where tangs 642, 644 protrude to prevent it from unwinding. This allows removal and reinsertion into the body 622 without loss of tension, easily accommodating right and left handed doors.

Location blocks 632 are provided to locate, guide and support the return spring 650 into body 622. Tang 642 is located in contact with location block 634 and tang 642 fits immovably into radial finger slot 648. When rotatable ring 652 is rotated to engage the bolt, tang 642 is pulled in a circular direction with a constant force until the bolt is projected.

Upon release of the rotatable ring 652, the return spring 650 rotates the rotatable ring 652 back to the original position. The deadbolt remains projected and cannot be disengaged by rotation of the rotatable ring 652. The material and methods used to construct the various components of this embodiment are identical to those disclosed above in the first preferred embodiment.

FIG. 21 illustrates an alternative embodiment of the biased rotatable ring return mechanism, the device being shown with the deadbolt in a semi-projected position. The rotatable ring 752 is constructed substantially around and in cooperating relation to the body 722 in the same way as described for the first preferred embodiment. The rotatable ring 752 includes a radial finger 758 extending inward in contact with radial actuator 762.

A return spring 750 is of the coiled extension type with end loops 742, 744, as is known to those skilled in the art. Loop 742 of the return spring 750 is connected and held by a means around radial finger 758. The other loop 744 is held in place by slot 746. The coils of the return spring are

held against and ride around a circular path on slide 748 by the tension of the return spring 750. The slide 748 may be an integral part of body 722 or can be an additional part made of plastic, metal or any suitable material. The slide 748 could be held rigidly or loosely within the body in a slot or by other means.

When rotating the rotatable ring 752 to project the bolt, the radial finger 758 elongates return spring 750 with increasing tension until the bolt is projected. Upon release of the rotatable ring 752, the return spring 750 pulls the rotatable ring 752 around to the original position. As in the other embodiments, this embodiment can be reversed for use with either right or left handed doors.

The material and methods used to construct the various components of this embodiment are identical to those disclosed above in the first preferred embodiment.

From the foregoing description those skilled in the art will appreciate that all of the objects of the present invention are realized.

The rotatable ring adds material thickness around the periphery of the device to greatly hinder efforts to access the mechanism by drilling. Further, the construction of the rotatable ring radial finger resists tampering of a twisting type, as the radial finger would tend to deform or break off, leaving the rotatable ring useless, as it would spin freely about the device and lock mechanism. In addition, the rotatable ring provides a moisture barrier which prevents corrosion or freezing of the assembly.

The device of the present invention further provides a spring ring/return spring assembly which functions to return the rotatable ring to its original resting position after the deadbolt is engaged. Returning the rotatable ring to its original position prevents any binding of the lock mechanism, as the radial finger is no longer in any contact with the radial actuator.

Any contact between the radial ringer and radial actuator would cause considerable binding of the radial finger along the extending arm. This is due to the offset rotation points of these two components. The radial actuator rotates about an axis considerably lower than the axis of rotation of the rotatable ring. The mechanical advantage gained by the radial finger from the rotatable ring acting on the extending arm makes this movement unnoticeable when projecting the bolt. If there is contact between the radial finger and the extending arm when a key is used to retract the bolt, then the great mechanical disadvantage from the key to this contact point makes the binding very pronounced and detrimental to the unlocking attempt.

Upon using a key to disengage the deadbolt, the lock will “behave” exactly as if the device of the present invention were not being used.

There is provided a body which houses and protects the lock tumbler. Additionally, the body houses and guides the movement of the spring ring/return spring assembly, and the radial actuator. The body provides bearing surfaces for the rotatable ring to ride on, and further inhibits lateral and axial motion of the rotatable ring. The thickness of the body makes it extremely difficult to drill through, and the profile of the body resists grasping the device with a wrench or other tool, thereby increasing security.

While specific embodiments have been shown and described, many variations are possible. The body, rotatable and locator rings may be constructed of any ferrous or non-ferrous metal, plastic, ceramic, composite or any other appropriately solid and strong material. These rings may be produced by other methods including other types of casting, injection molding, machining or any other appropriate method.

The spring ring can be constructed of another plastic material, or any of the materials and by any of the processes listed above. The radial actuator may be constructed of sheet steel by die cutting, laser cutting or other method, but may also be of a plastic material by injection or other molding, or any of the materials and by any of the processes listed above.

The return spring can be made of music wire, stainless steel or any other spring material and can be used in plated or unplated form.

While a preferred spring ring/return spring assembly has been illustrated to provide a means to return the rotatable ring to its original position, several modifications may be made. The spring ring could be constructed as only a partial circle of a cross section and fit inside the return spring. The spring ring could also be held rigidly or loosely by some other portion of the rotatable ring, or some portion of the base ring.

Having described the invention in detail, those skilled in the art will appreciate that modifications may be made of the invention without departing from its spirit. Therefore, it is not intended that the scope of the invention be limited to the specific embodiment illustrated and described. Rather, it is intended that the scope of this invention be determined by the appended claims and their equivalents.

What is claimed is:

1. A keyless deadbolt lock engaging apparatus for use with a conventional deadbolt assembly, the apparatus comprising:

an actuator means to engage the deadbolt assembly;

a rotational means capable of rotating from a first position in which the actuator means is in a deadbolt disengaged position to a second position in which the actuator means is in a deadbolt engaged position; and

a biasing means to return the rotational means from the second position to the first position while the actuator means remains in the deadbolt engaged position.

2. The keyless deadbolt lock engaging apparatus of claim 1 wherein the biasing means is a spring mechanism.

3. The keyless deadbolt lock engaging apparatus of claim 1 wherein the biasing means includes a torsional type spring.

4. The keyless deadbolt lock engaging apparatus of claim 1 wherein the biasing means includes a coiled constant force type spring.

5. The keyless deadbolt lock engaging apparatus of claim 1 wherein the biasing means includes a coiled extension type having end loops.

6. The keyless deadbolt lock engaging apparatus of claim 1 wherein the biasing means includes a helical coiled compression spring.

7. The keyless deadbolt lock engaging apparatus of claim 1 wherein the actuator means is a radial actuator.

8. The keyless deadbolt lock engaging apparatus of claim 1 wherein the actuator means is a paddle actuator.

9. The keyless deadbolt lock engaging apparatus of claim 1 wherein the rotational means is a rotating ring.

10. A keyless deadbolt lock engaging apparatus for use with a conventional deadbolt lock assembly, the lock assembly having an axial actuator, the apparatus comprising:

a body having a center aperture through which the lock assembly is located, the lock assembly being secured to the body;

a locator ring to secure the apparatus to a door fitted with the conventional deadbolt lock assembly;

a radial actuator means to engage the deadbolt assembly, the radial actuator including an arm extension and a center aperture through which the deadbolt lock assembly axial actuator is located;

a rotational ring means capable of rotating from a first position in which the actuator means is in a deadbolt disengaged position to a second position in which the actuator means is in a deadbolt engaged position; and

a biasing means to return the rotational means from the second position to the first position while the actuator means remains in the deadbolt engaged position.

11. The keyless deadbolt lock engaging apparatus of claim 10 wherein the biasing means is a spring mechanism.

12. The keyless deadbolt lock engaging apparatus of claim 10 wherein the biasing means includes a torsional type spring.

13. The keyless deadbolt lock engaging apparatus of claim 10 wherein the biasing means includes a coiled constant force type spring.

14. The keyless deadbolt lock engaging apparatus of claim 10 wherein the biasing means includes a coiled extension type having end loops.

15. The keyless deadbolt lock engaging apparatus of claim 10 wherein the biasing means includes a helical coiled compression spring.

16. A keyless deadbolt lock engaging apparatus for use in combination with a conventional deadbolt lock tumbler assembly having an axial actuator, the apparatus comprising;

a locator ring to secure the apparatus to a door to be fitted with the conventional deadbolt lock assembly;

a body to substantially house the lock assembly;

a rotatable ring, the rotatable ring including a radial finger;

a return spring mechanism; and

a radial actuator having a projecting arm, the arm being located adjacent to and moveable by the rotatable ring radial finger, the radial actuator further including a center aperture through which the tumbler actuator is located;

whereby upon turning the rotatable ring from a first position to a second position the radial finger pushes the radial actuator from a deadbolt disengaged position to a deadbolt engaged position, and further whereby upon release of the rotatable ring the return spring mechanism causes the rotatable ring to rotate back to the first position while allowing the radial actuator to remain in the deadbolt engaged position.

17. The keyless deadbolt lock engaging apparatus of claim 16 herein the locator ring further includes a projection having an outer shoulder projection of decreased diameter;

wherein the body includes a channel portion, the channel portion including shoulder grooves, the body further including step projections extending into the center of the body, the step projections preventing the body from rotating about the tumbler assembly, the portion of the body adjacent the locator ring being a shoulder of a decreased diameter, the body shoulder and locator ring shoulder forming a radial channel;

wherein the rotatable ring is located within and is rotatable about the radial channel formed by the body and locator ring, the rotatable ring including a radial finger extending inward, the radial finger having a notch;

wherein the return spring mechanism includes a spring ring including a spring stop, a grooved portion and an end stop, the spring ring being located within the body channel, the grooved portion being located within the rotatable ring finger notch; and

a return helical coiled compression return spring coiled about the spring ring, the return spring being located between the spring ring spring stop and the body shoulder groove;

whereby upon turning the rotatable ring from an original position the radial finger pushes the radial actuator from a deadbolt disengaged position to a deadbolt engaged position, the radial finger further pushing the spring ring by the grooved portion thereby causing the return spring to be compressed between the body shoulder groove and the spring ring spring stop, and further whereby upon release of the rotatable ring the return spring causes the rotatable ring to rotate back to the original position while allowing the radial actuator to remain in the deadbolt engaged position.

18. The keyless deadbolt lock engaging apparatus of claim 16 wherein the body includes a body slot;

the rotatable ring radial finger includes a radial finger slot;

the spring mechanism includes a torsional type spring having a first and a second elongated member being joined at a coiled member, the first elongated member being connected to the radial finger slot, the second elongated member being connected to the body slot;

whereby upon turning the rotatable ring from an original position pushes the radial actuator from a deadbolt disengaged position to a deadbolt engaged position, the radial finger further pulling the first elongated member as the second elongated member remains connected to the body slot to increase the torsional force on the coiled member, and further whereby upon release of the rotatable ring the coiled member forces the rotatable ring back to the original position through the first elongated member while allowing the radial actuator to remain in the deadbolt engaged position.

19. The keyless deadbolt lock engaging apparatus of claim 16 wherein the body includes a body slot;

the rotatable ring radial finger includes a radial finger slot;

the spring mechanism includes a coiled constant force type spring having a first and a second spring end, the first spring end being connected to the radial finger slot, the second spring end being connected to the body slot;

whereby upon turning the rotatable ring from an original position pushes the radial actuator from a deadbolt disengaged position to a deadbolt engaged position, the radial finger further pulling the first spring end as the second spring end remains connected to the body slot to increase the torsional force on the spring, and further whereby upon release of the rotatable ring the spring forces

the rotatable ring back to the original position through the first spring end allowing the radial actuator to remain in the deadbolt engaged position.

20. The keyless deadbolt lock engaging apparatus of claim 16 wherein body includes a body slot; the rotatable ring radial finger includes a radial finger slot;

the spring mechanism includes a coiled extension type spring having a first and a second end loop, the first end loop being connected to the radial finger slot, the second end loop being connected to the body slot;

whereby upon turning the rotatable ring from an original position pushes the radial actuator from a deadbolt disengaged position to a deadbolt engaged position, the radial finger further pulling the first end loop as the second end loop remains connected to the body slot to increase the tension on the spring, and further whereby upon release of the rotatable ring the spring forces the rotatable ring back to the original position through the first end loop allowing the radial actuator to remain in the deadbolt engaged position.

21. The keyless deadbolt lock engaging apparatus of claim 16 wherein the locator ring further includes a projection having an outer shoulder projection of decreased diameter;

wherein the body includes a channel portion, the channel portion including shoulder grooves, the body further including step projections extending into the center of the body, the step projections preventing the body from rotating about the tumbler assembly, the portion of the body adjacent the locator ring being a shoulder of a decreased diameter, the body shoulder and locator ring shoulder forming a radial channel;

wherein the rotatable ring is located within and is rotatable about the radial channel formed by the body and locator ring, the rotatable ring including a radial finger extending inward, the radial finger having a notch;

wherein the return spring mechanism includes a spring ring including a spring stop, a grooved portion and an end stop, the spring ring being located within the body channel, the grooved portion being located within the rotatable ring finger notch, and

a return helical coiled compression return spring coiled about the spring ring, the return spring being located between the spring ring spring step and the body shoulder groove,

whereby upon turning the rotatable ring from an original position the radial finger pushes the radial actuator from a deadbolt disengaged position to a deadbolt engaged position, the radial finger further pulling the spring ring by the grooved portion thereby causing the return spring to be compressed between the body shoulder groove and the spring ring spring stop, and further whereby upon release of the rotatable ring the return spring causes the rotatable ring to rotate back to the original position while allowing the radial actuator to remain in the deadbolt engaged position.

22. The keyless deadbolt lock engaging apparatus of claim 16 wherein the body includes a base portion and a face portion, thereby forming an L-shaped cross-sectional lock assembly housing, the face portion including at lease one semi-circular aperture;

the rotatable ring has a base portion and a face portion thereby forming an L-shaped cross-section sized to rotate within and against the body base portion and the body face portions, the rotatable ring further including at lease one rotator projection extending from the face portion of the rotatable ring through the semi-circular aperture of the face portion of the body,

whereby the rotatable ring is encased by the body, but can be rotated from the exterior of the apparatus.

23. The keyless deadbolt lock engaging apparatus of claim 16 wherein the body includes a channeled shoulder portion along the body center aperture, the body further including an outer aperture of about 180 degrees or less; and

the rotatable ring is fitted to rotate within and against the body shoulder, the rotatable ring further including a rotator projection extending from the rotatable ring through the outer aperture, whereby the rotatable ring is encased by the body, but can be rotated from the exterior of the apparatus.

24. The keyless deadbolt lock engaging apparatus of claim 16 wherein the radial actuator is a bolt actuator having a paddle shaped surface;

whereby the rotatable ring radial finger pushes against the paddle surface to engage the deadbolt.

25. A keyless deadbolt lock engaging apparatus for use in combination with a conventional deadbolt lock tumbler assembly having an axial actuator, the apparatus comprising:

a locator ring to secure the apparatus to a door fitted with the conventional deadbolt lock assembly, the ring including a projection having an outer shoulder projection of decreased diameter;

a body including a channel portion, the channel portion including shoulder grooves, the body further including step projections extending into the center of the body, the step projections preventing the body from rotating about the tumbler assembly, the portion of the body adjacent the locator ring being a shoulder of a decreased diameter, the body shoulder and locator ring shoulder forming a radial channel;

a rotatable ring located within and being rotatable about the radial channel formed by the body and locator ring, the rotatable ring including a radial finger extending inward, the radial finger having a notch;

a spring ring including a spring stop, a grooved portion and an end stop, the spring ring being located within the body channel, the grooved portion being located within the rotatable ring finger notch;

a return helical coiled compression return spring coiled about the spring ring, the spring being located between the spring ring spring stop and the body channel shoulder; and

a radial actuator having a projecting arm, the arm being located adjacent to and moveable by the rotatable ring finger, the radial actuator further including a center aperture through which the tumbler actuator is located;

whereby upon turning the rotatable ring from an original position the radial finger pushes the radial actuator from a deadbolt disengaged position to a deadbolt engaged position, the radial finger further pulling the spring ring by the grooved portion thereby causing the return spring to be compressed between the body shoulder groove and the spring ring spring stop, and further whereby release of the rotatable ring the return spring causes the rotatable ring to rotate back to the original position while allowing the radial actuator to remain in the deadbolt engaged position.

ABSTRACT

A device allowing engagement of a conventional keyed deadbolt lock tumbler assembly without use of a key is provided. The device is assembled around the tumbler assembly and is fitted into a standard door lock cut-out. The device includes a rotatable ring extending substantially around the periphery of the device. At rest the rotatable ring is biased in an original starting position. Upon overcoming the bias, the rotatable ring is moved to a second engaging position. Upon release of the rotatable ring the ring is biased back to the original position, while at the same time the deadbolt remains engaged. The biasing back of the device prevents the lock from binding or jamming.

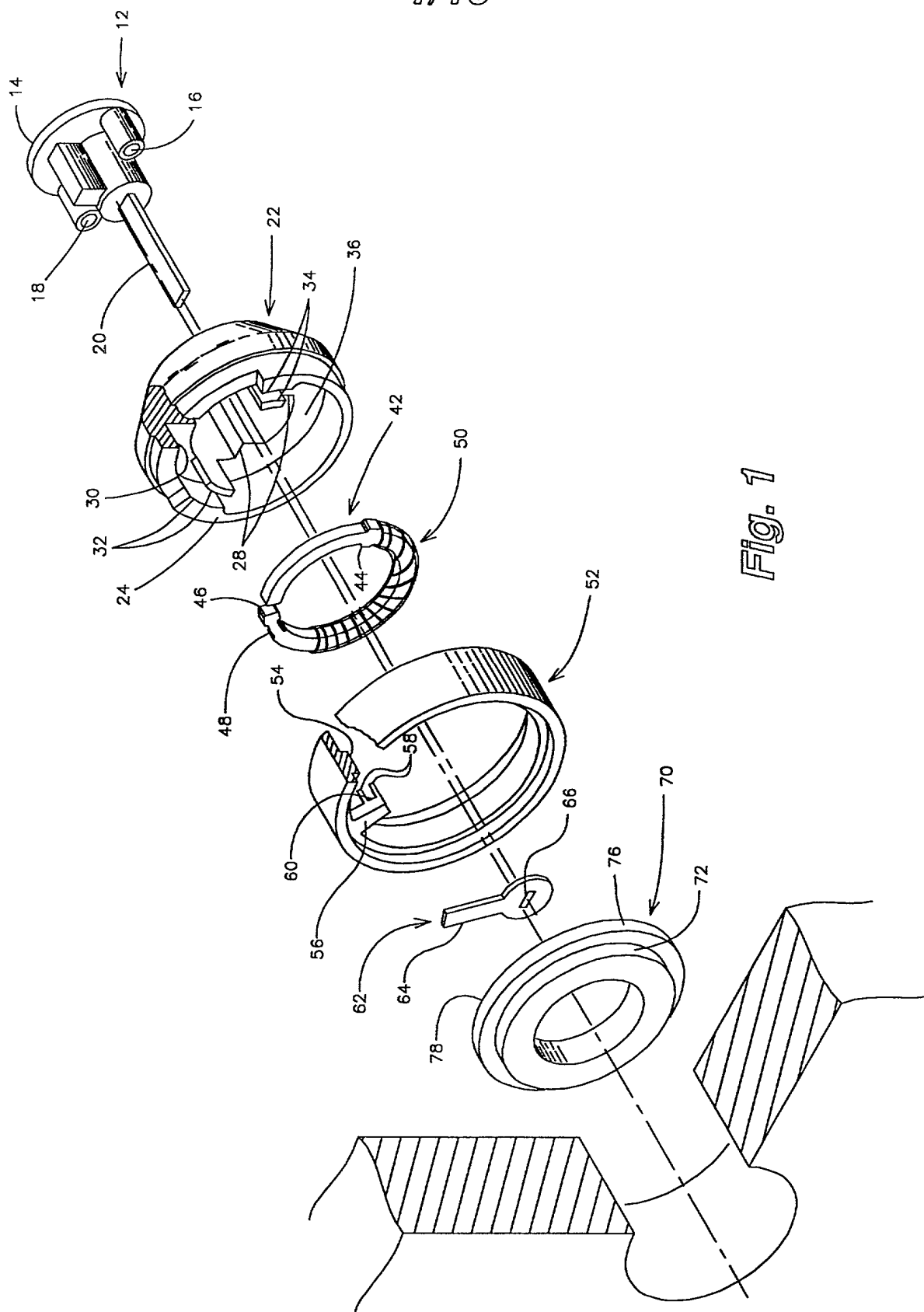


Fig. 1

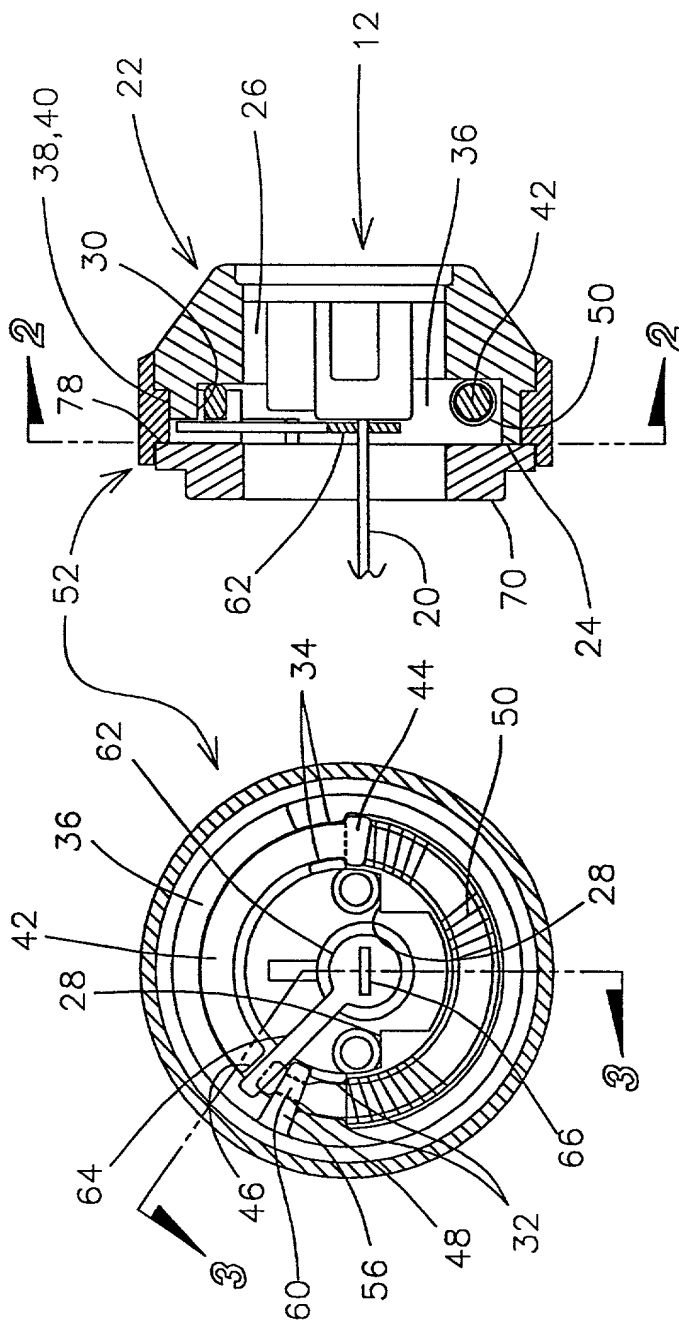


Fig. 3

Fig. 2

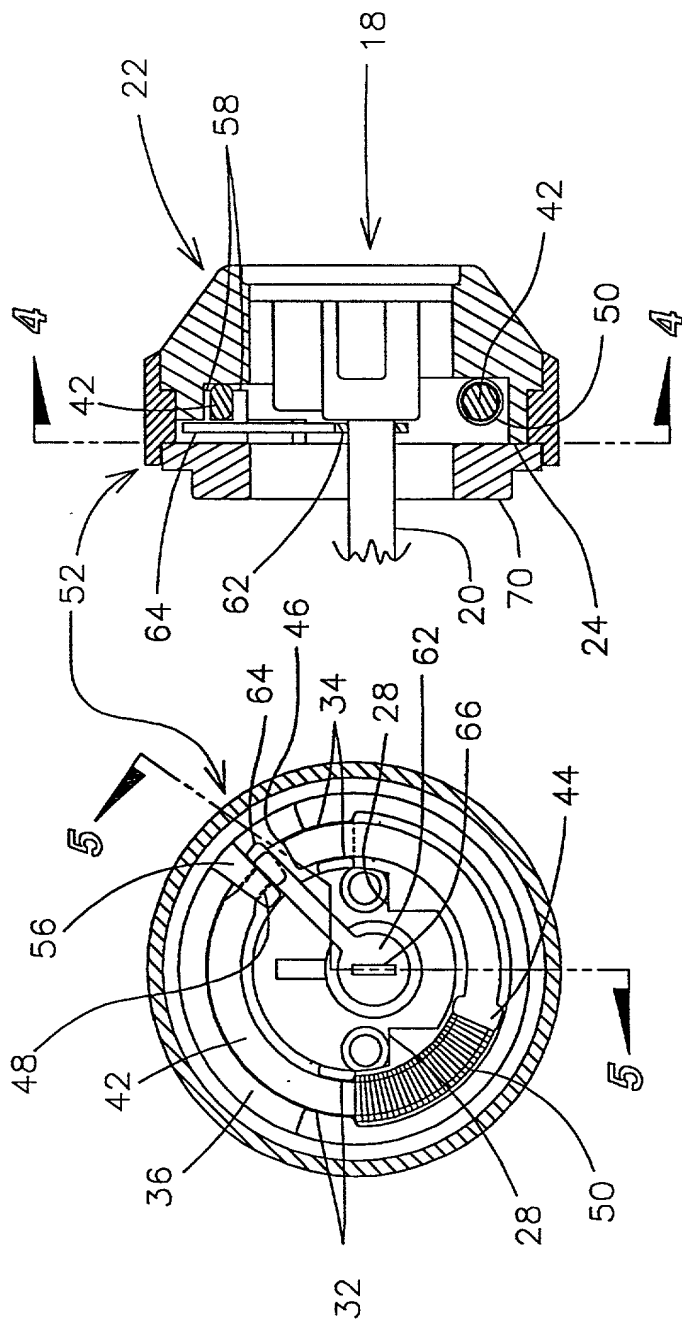


Fig. 5

Fig. 4

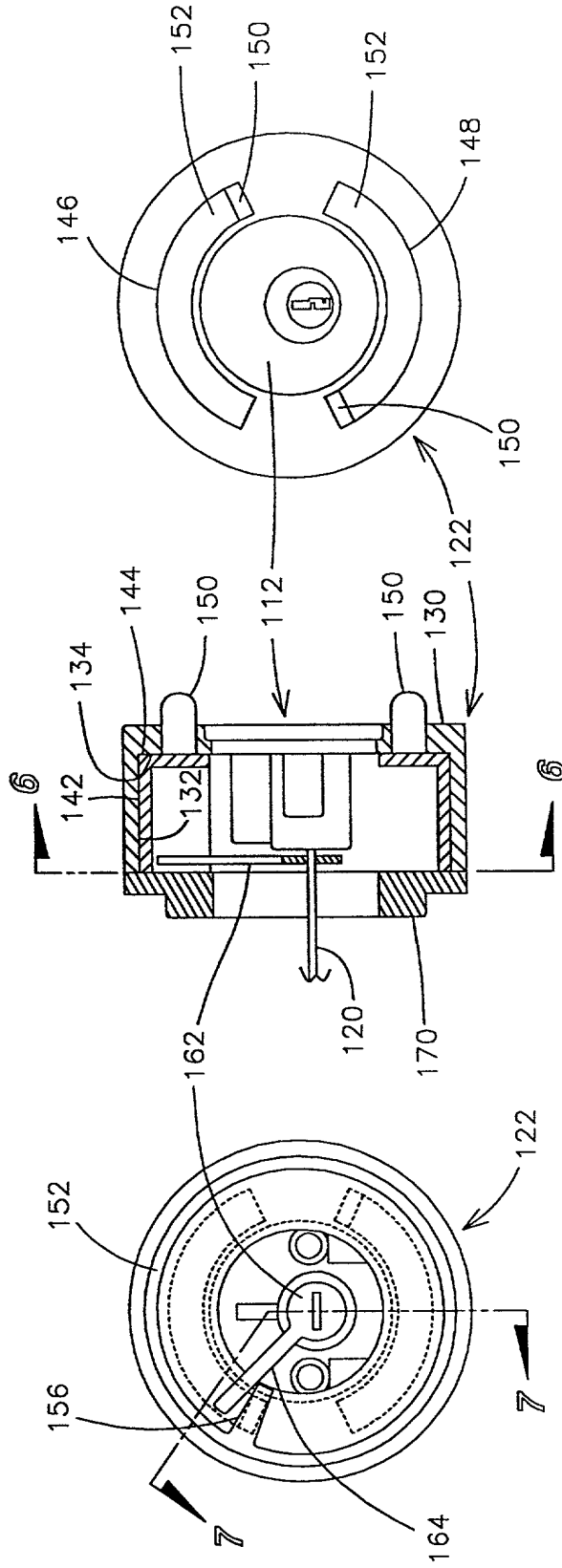


Fig. 8

Fig. 7

Fig. 6

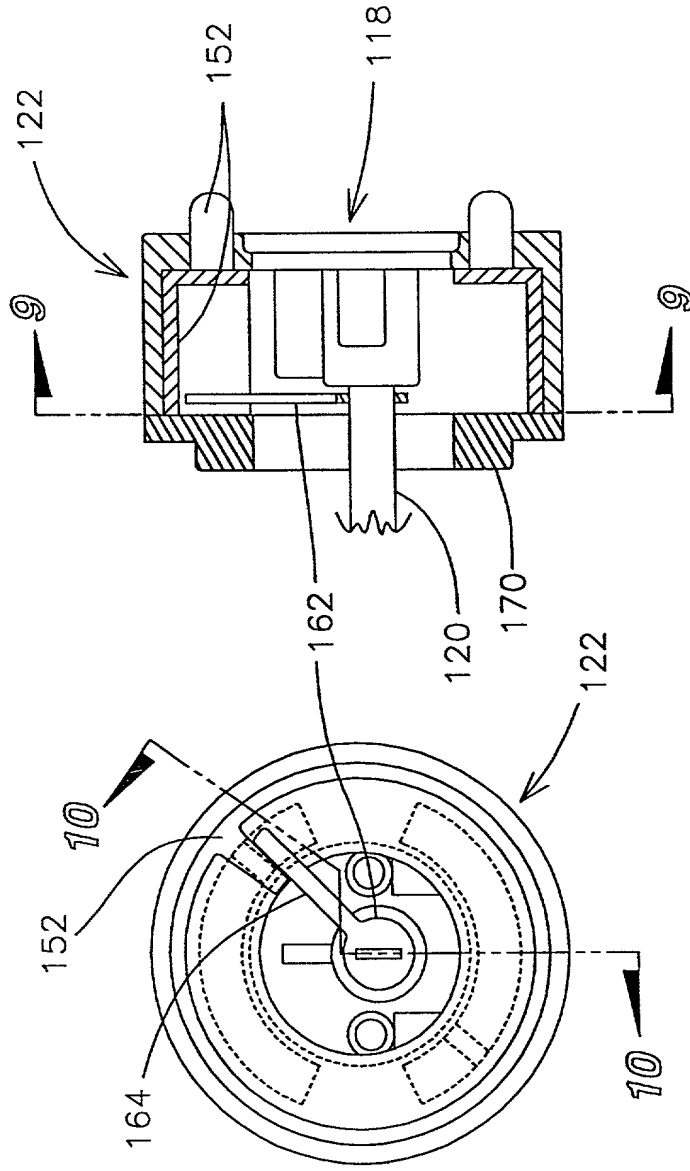


Fig. 10

Fig. 9

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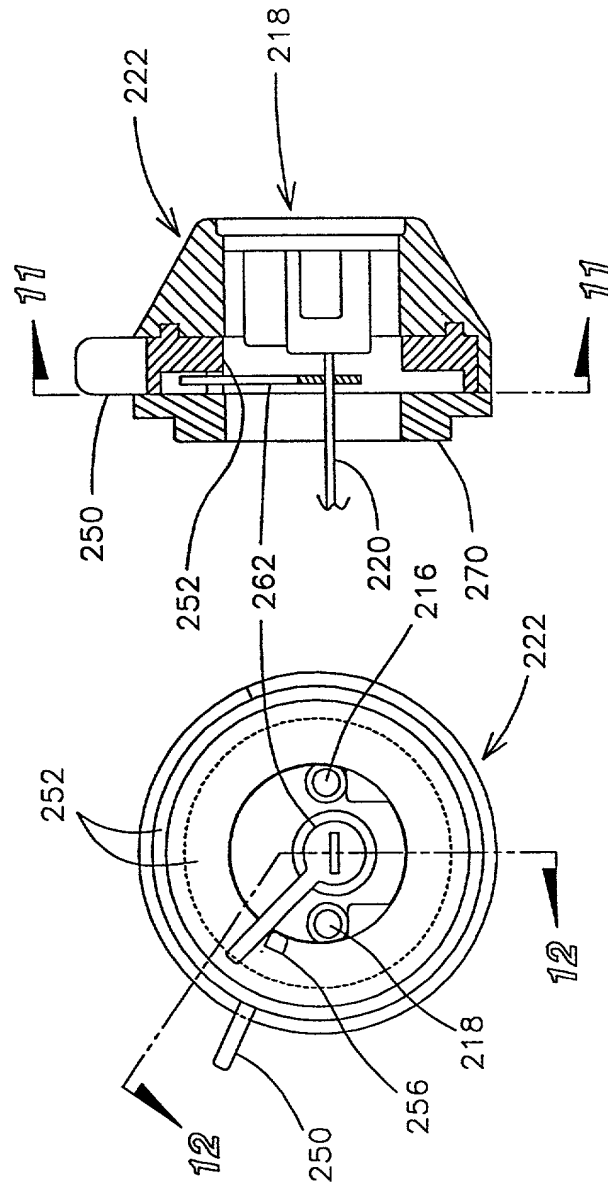
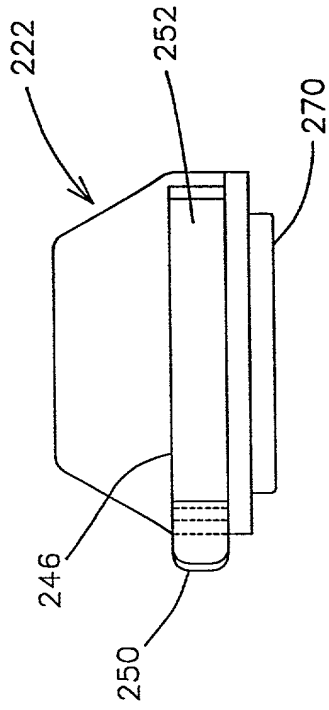


Fig. 12

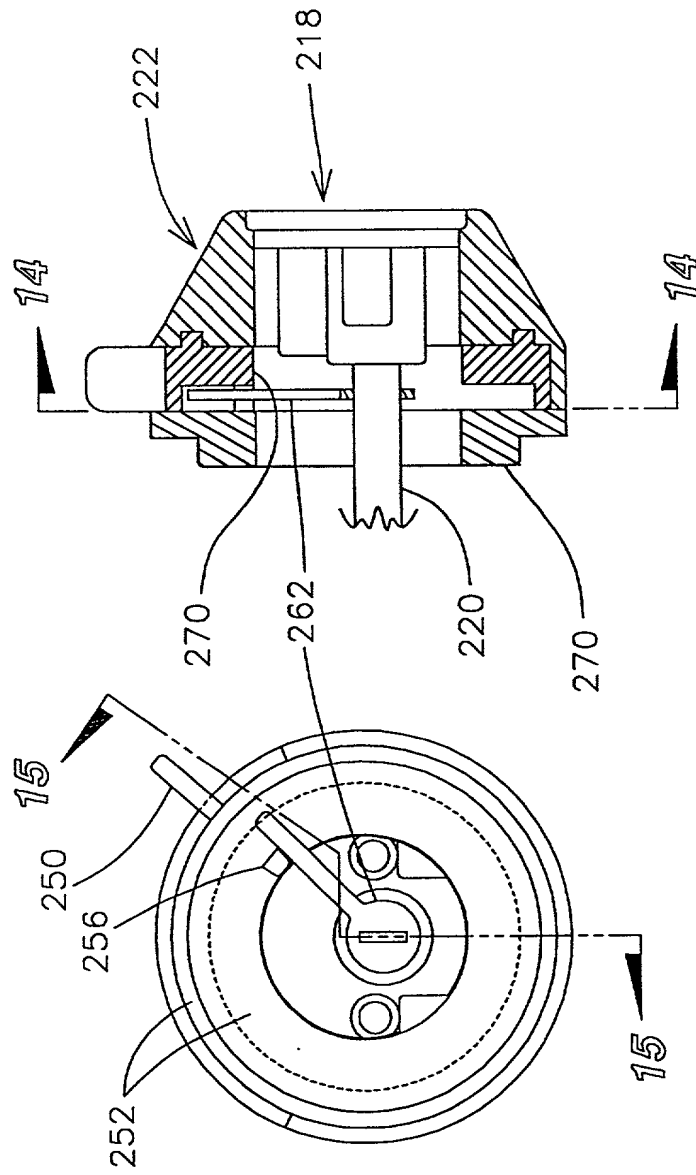


Fig. 14 Fig. 15

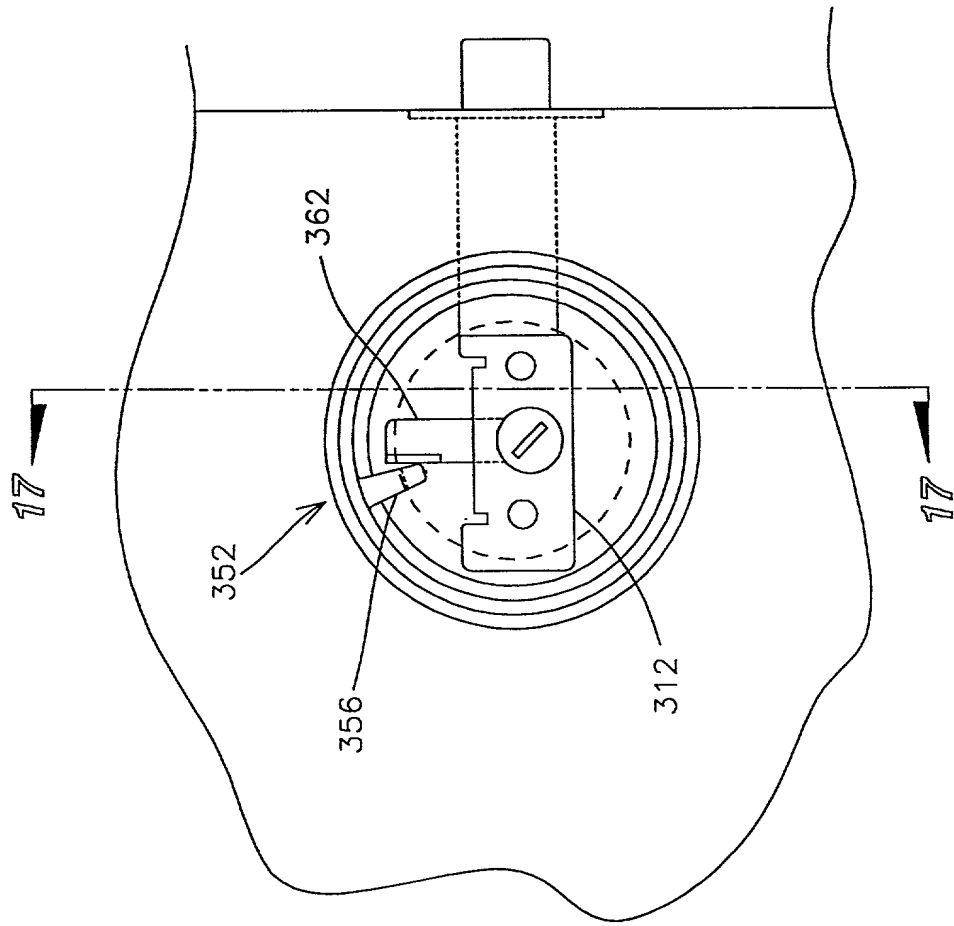


Fig. 16

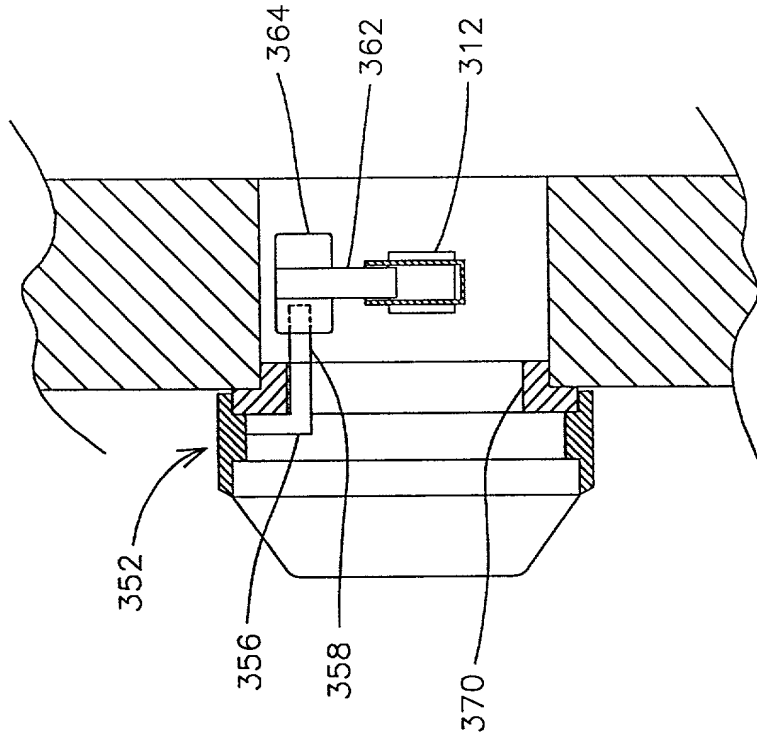


Fig. 17

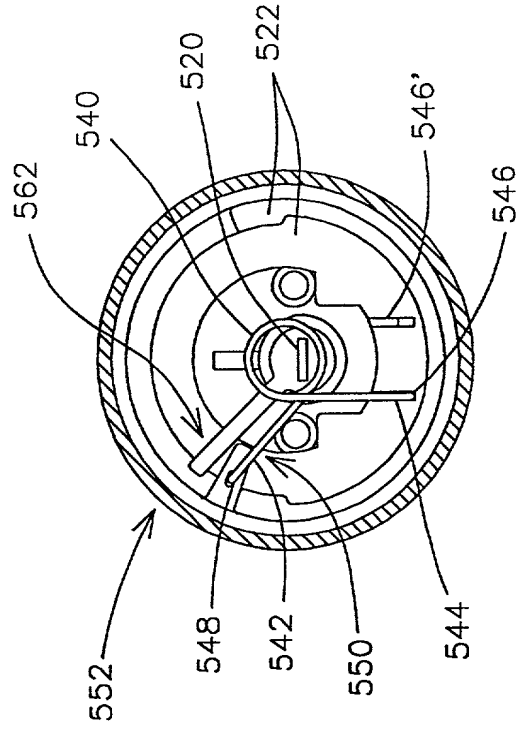


Fig. 19

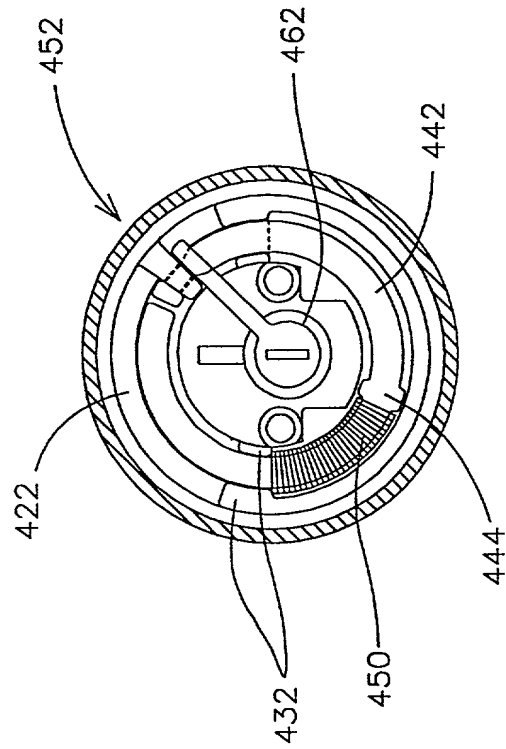


Fig. 18

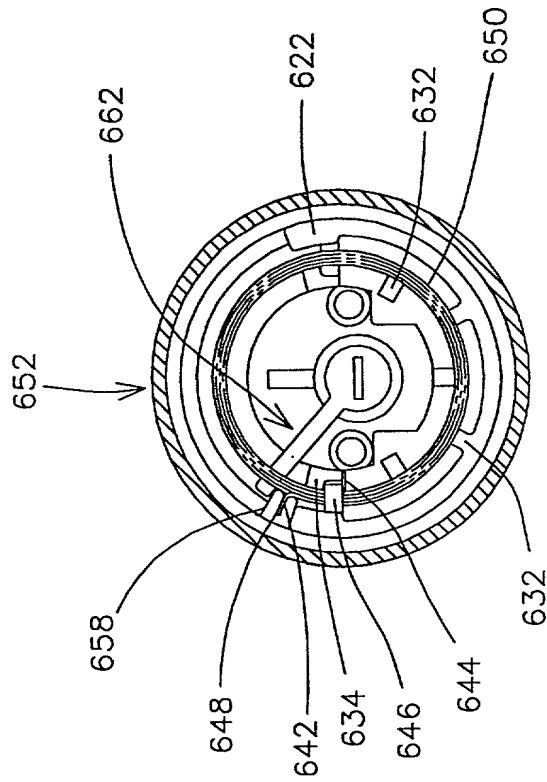


Fig. 20

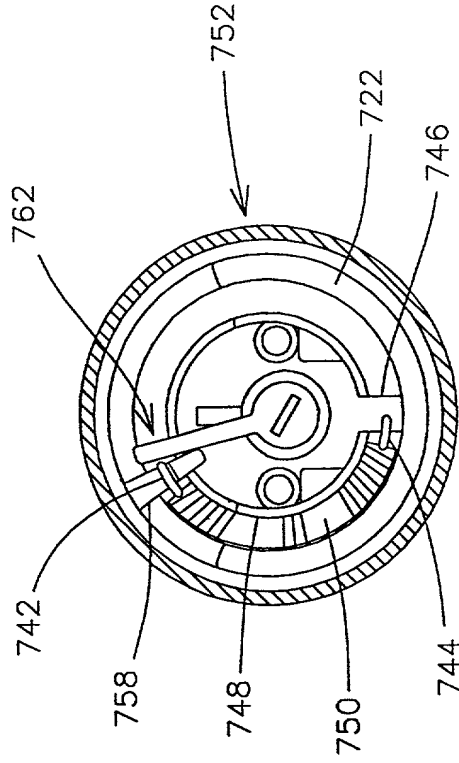


Fig. 21

COPY

DECLARATION AND POWER OF ATTORNEY

As below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled, KEYLESS DEADBOLT LOCK ENGAGING DEVICE the specification of which was filed October 31, 1996.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, Sect. 1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, Sect. 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

PRIOR FOREIGN APPLICATION(S)

Priority
Claimed

<hr/>			() ()
Number	Country	Day/Month/Year Filed	Yes No

<hr/>			() ()
Number	Country	Day/Month/Year Filed	Yes No

I hereby claim the benefit under Title 35, United States Code, Sect. 119(e) or 120 of any United States application(s) listed below and insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Sect. 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, Sect. 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application.

Provisional

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